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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/016,192
Filing Date: December 12, 2001
Appellant(s): WILENSKY ET AL.

MAILED

JUN 15 2007

Technology Center 2100

Michael Rocco Cannatti
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10th day of November, 2006 appealing from the Office action mailed on the 10th day of May, 2006.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,466,200

ULRICH

11-1995

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Ulrich, US Patent 5,466,200.

As per claim 1, Ulrich discloses a modeling device for a simulation of complex dynamic systems, comprising:

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a plurality of remote agents, each remote agent comprising:

logic to receive input data (**Fig 1 item 14****Fig 2A item 28 and 30; col 1 line 65 - col 2 line 2**);

object control node information corresponding to the performance of the remote agent and the relationship of the remote agent to the simulation (**col.: 2 lines: 41-55; abstract lines 8-11**);

control instructions to convert the input data into the control node information (**col.: 5 lines: 37-42**); and

logic to transmit the object control node information and the control instructions to a server computing device (**col.: 7 lines: 35-52**); and

the server computing device, comprising:

an object-based parallel modeling language component that collects object control node information and control instructions corresponding to each of the remote agents of the plurality of remote agents and coordinates the interaction of the remote agents based upon the collected object control node information and control instructions (**col.: 8 lines: 53-55, Figure 8 and 9 item 104; Figure 11 object-based parallel modeling language component ... item 138/136**); and

logic to transmit interactive simulation information based upon the coordination of the interaction of the remote agents to the plurality of remote agents (**col.: 10 lines: 65-66**).

As per claim 2, Ulrich discloses a modeling device of claim 1, the server computing device further comprising:

modeling tools (**col.: 4 lines: 9-11**); analysis tools (**col.: 5 lines: 46-47 and 52-54; Figure 11**); and display tools (**Figure 2A item 35, figure 10 item 20**).

As per claim 3, Ulrich discloses a modeling device of claim 1, wherein the interactive simulation information is transmitted to a particular remote agent only if the simulation information of the particular

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remote agent is impacted by control node information and control instructions of a second remote agent
(col.: 9 lines: 7-10).

As per claim 4, Ulrich discloses a modeling device of claim 1, wherein the input information comprises:
input data **(Figure 13 item 156)**; and control instructions corresponding to the remote agent **(Figure 13 items 180 and 182).**

As per claim 5, Ulrich discloses a modeling device of claim 1, the server further comprising:

a central control panel comprising **(Figure 8 item 104; figure 2A item 34):**

a graphical display for viewing the simulation information **(col.: 10 lines: 2-4).**

As per claim 6, Ulrich discloses a modeling device of claim 5, wherein the graphical display also displays
input information and status data for a selected remote agent of the plurality of remote agents **(col.: 10 lines: 2-7 input information ... pre-prepared persona, status data ... packaged software).**

As per claim 7, Ulrich discloses a modeling device of claim 5, the central control panel further comprising:

a plurality of user input devices for providing direct interaction with the object-based parallel
modeling language component by enabling a user to input information and control instructions,
both corresponding to a selected remote device **(Figure 12, Figure 2A item 27).**

As per claim 8, Ulrich discloses a method of producing a coordinated and interactive simulation of a
dynamic system, comprising the steps of:

defining a set of remote agents, wherein each remote agent performs the steps of:

receiving input data **(Fig 1 item 14 Fig 2A item 28 and 30; col 1 line 65 - col 2 line 2);**

transmitting the input data and control instructions relating to a corresponding remote
agent of the set of remote agents to a server computing device **(col.: 7 lines: 35-52);**

and collecting the input data and control instructions from each of the remote agents of
the plurality of remote agents at the server computing device **(col.: 8 lines: 53-55, Figure 8 and 9 item 104, Figure 11 step 56; col 9 lines 11-17);**

coordinating the interaction of the remote agents at the server computing device based upon the input data and the control instructions, each set of control instructions corresponding to the set of control instructions of each remote agent of the plurality of remote agents (**col.: 9 lines: 11-17**);

and transmitting interactive simulation information based upon the coordination of the interaction of the remote agents from the server computing device to the plurality of remote agents (**col.: 9 lines: 11-17**).

As per claim 9, Ulrich discloses a simulation method of claim 8, the coordinating step comprising the steps of:

analyzing the input data corresponding to a particular remote agent based upon control instructions corresponding to the particular remote agent (**col.: 5 lines: 52-54**);

modeling the interactive simulation information based upon an interaction between the analyzed input data from the remote agents (**col.: 5 lines: 35-37**);

and displaying a simulation based upon the interactive simulation information (**col.: 5 lines: 35-37**).

As per claim 10, Ulrich discloses a simulation method of claim 8, wherein the interactive simulation information is transmitted to a particular remote agent only if the simulation information for the particular remote agent is impacted by control node information and control instructions of a second remote agent (**col.: 9 lines: 7-10**).

As per claim 11, Ulrich discloses a simulation method of claim 8, further comprising the step of:

defining sets of control instructions (**col.: 5 lines: 37-42**),

each set of control instructions corresponding to a remote agent of the plurality of remote agents (**col.: 6 lines: 44-47**);

and input to each particular remote agent the set of control instructions corresponding to the particular remote agent (**col.: 6 lines: 44-47**).

As per claim 12, Ulrich discloses a simulation method of claim 8, further comprising the step of:

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displaying on a central control panel coupled to the server computing device a graphical display of the interactive simulation information (**Figure 2A item 35, col 9 lines 1-5**).

As per claim 13, Ulrich discloses a simulation method of claim 12, further comprising the step of:

displaying on the central control panel input information and status data for a selected remote agent of the plurality of remote agents (**col.: 10 lines: 2-7 input information ... pre-prepared persona, status data ... packaged software**).

As per claim 14, Ulrich discloses a simulation method of claim 12, further comprising the step of:

entering input information and control instructions, both corresponding to a selected remote device, at the server computing device (**Figure 10; figure 2A item 30; Figure 7 Figure 8 item 106/122/110/108**).

(10) Response to Argument

10.1 Appellants argue (Brief: page 5 Section A):

10.1.1 "[T]he Examiner's Final Office Action required Applicants to correct claim 8 so that the reference to "the coordination" was changed to "a coordination." In response, Applicants submitted an amendment to claim 8 in the Amendment and Response to Final Office Action dated July 10, 2006 which met the Examiner's requirement on this point.

10.1.2 However, without any explanation, the Examiner refused to enter the amendment to claim 8. See, Advisory Action (August 4, 2006). Applicants submit that the refusal to enter the amendment was an arbitrary decision that was an abuse of any discretion that the Examiner had on this issue. Accordingly, Applicants respectfully request that the refusal to enter the requirement amendment be withdrawn and that the objection to claim 8 be withdrawn." (Brief: page 5)

10.2 Examiner Response:

10.2.1 Appellants' attention is respectfully drawn to the Advisory Action. After a careful review, it is readily apparent that the amendment after final was not entered because it presented "new

issues requiring further search and consideration". Specifically, Appellants had amended the claim to recite "simulates the interaction of remote agents", compared to the original "coordinates the interaction of the remote agents".

Appellants appear to have done this in response to the Final Office Action's ("Final Office Action" dated 5/10/2006) assertion that "coordinating" is not the same as "simulating" / "modeling".

Additionally, it seems the Applicants are arguing that the central server of their claimed invention performs a modeling of the remote agents. This however is not claimed. The central server *collects* data from remote agents and *coordinates* the interaction of remote agents. It is asserted that the claimed invention does not require that the central server perform the modeling of the agents, none the less the Examiner has traversed this argument above. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. *See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).*

(Final Office Action: page 3 second full paragraph)

To exemplify the issue, coordinating troops on a battlefield is **not** equivalent to simulating troops on a battlefield, as such, it required further search and consideration. Thus, the amendment after final was not entered.

10.2.2 Regarding subsection 2 *supra*, Appellants are once again encouraged to carefully review the Advisory Action mailed on August 4, 2006.

10.2.3 It is further noted, Appellants have not argued the above statement, but have apparently attempted to amend the claim after finality was established.

10.3 **Appellants argue (Brief: page 6 to top of page 9 section B.1):**

10.3.1 "Applicants respectfully submit that the rejection of claims 1-14 is based on a misapplication of the claims to the Ulrich Patent. Generally speaking, the misapplication occurs when the centralized aspects of the claims (which variously recite a centralized server-based system for modeling, simulating, authoring, and/or displaying a complex and interactive dynamic system)

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are applied to the distributed aspects of Ulrich (which discloses a network of computerized remote exercise machines, each of which generates an interactive simulated environment using distributed database techniques). In short, Ulrich distributes the simulation functionality at each remote exercise machine, while the present invention provides a centralized simulator."

(emphasis added by Examiner)

10.3.2 Arguments presented on page 7 to top of 8 are drawn to the above.

10.3.3 "The Examiner appears to acknowledge this argument, but responds with the assertion that Ulrich discloses (at col. 11, lines 31-64) that the hub processor 104 "coordinates" the interaction of remote agents (exercise machines) by disseminating control information and instructions received from one remote agent to the other agents, thereby meeting the centralized modeling requirement. See, Final Office Action, pp. 2-3 (paragraph 8). The Examiner then asserts that Applicants have not claimed a central server that performs modeling of the remote agents. See, Final Office Action, p. 3 ("Additionally, it seems the Applicants are arguing that the central server of their claimed invention performs a modeling of the remote agents. This however is not claimed.").

10.3.4 "Applicants must strenuously disagree. It should first be noted that the language of claim 1 explicitly recites a "modeling device for a simulation of complex dynamic systems." See above, claim 1, line 1 (emphasis added). More importantly, claim 1 explicitly recites that the "server computing device" includes "an object-based modeling language component." See, claim 1, line 12 (emphasis added). In addition, claim 1 requires that "interactive simulation information" be transmitted by the server computing device."

10.4 **Examiner Response:**

10.4.1 Regarding subsection 1 *supra*, the emphasized portion was added after finality was established and has not been entered. Coordinating interaction is not the same as simulating interaction as exemplified in section 10.2.1 above. Specifically, coordinating troops is not equivalent to simulating troops. Therefore, Appellants are arguing features not claimed. The coordination of

interaction of remote agents is disclosed by Ulrich on **(Fig 8 and 9 and their respective descriptions)**. The brief description of Fig 8, for example, is "...a hub controls communications between two or more exercise apparatus ("nodes") by receiving information from all nodes and directing information to all of, or to a subset of all of, the nodes." The control of the communication is the coordination (establishing and communicating position and other variables) of agents ("nodes").

It is further noted that Appellants have not argued that Ulrich's hub does not perform coordination of interaction, and thus, appear to have acquiesced that Ulrich's central hub indeed performs coordination of interaction.

10.4.2 Regarding subsection 2 *supra*, Arguments presented on page 7 to top of page 8 are moot because Appellants are arguing features not claimed.

10.4.3 Regarding subsection 3 *supra*, The Appellants arguing that simulation is not disclosed by the Ulrich reference, but, are claiming the coordination of interaction. This appears to be acknowledged by the non-entered After Final Amendment where the word "coordinates" had been replaced with "simulates".

10.4.4 Regarding subsection 4 *supra*, Appellants strenuous disagreement has been noted. Once again, it is noted that the claims are drawn to coordination of interaction, not simulation of interaction. Attention is drawn to PG PUB paragraph [0050] of the Instant Application, which discloses: "With such a modeling component, the behavior of thousands of objects can be controlled in parallel." (emphasis added). Thus, showing that the modeling component **controls** (coordinates) behavior (interaction), but does not, as argued, simulate the interaction. The claim recites "an object-based parallel modeling language component that [...] coordinates the interaction of the remote agents" (emphasis added), i.e., controls the interaction (behavior).

10.5 **Appellants argue (Brief: page 9-10 Section B.2):**

- 10.5.1 "Another deficiency is that Ulrich entirely fails to teach or disclose the requirement in claims 1-7 of a server-side "object-based parallel modeling language component" that coordinates remote inputs at the server to efficiently simulate a complex system of remote and independent inputs. Indeed, there is no reference in Ulrich to any "modeling language," whether "object-based," "parallel" or otherwise!"
- 10.5.2 "This database distribution function of the hub processor 104 is confirmed by Ulrich's description of the hub processor block diagram (Figure 12) and process flow flowchart (Figure 13), which confirm that Ulrich's hub processor 104 performs database update and distribution functions without ever mentioning or suggesting any modeling function, much less any "object-based parallel modeling language component." Ulrich's use of the hub processor to distribute database information does not meet the claim requirement of a server-side modeling language component for coordinating the interaction of remote agents."
- 10.5.3 "[...] Applicants respectfully submit that the Examiner has not used the ordinary meaning of an "object-based" modeling language, which is properly understood to refer to a modeling language that acts on each "object" as a self-contained unit that has its own internal state and can be given its own local procedures and rules of interaction. See, e.g., Microsoft Computer Dictionary, p. 338 (3d ed. 1997) ("**object-oriented programming** ... A programming paradigm in which a program is viewed as a collection of discrete objects that are self-contained collections of data structures and routines that interact with other objects.") (attached as Exhibit B in Appendix D).² Examples of such object-based languages include, but are not limited to, Simula, Smalltalk, C++, Objective-C, Eiffel, Python, Java, C#, Visual Basic.NET and REALbasic.
- 10.5.4 More importantly, Applicants' interpretation complies with the requirement that, during patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." See, MPEP, § 2111 (citing *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000)) (emphasis added). In this respect, Applicants' specification states that "object-based parallel computer modeling languages (OBPML), such as StarLogo and

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StarLogoT (Resnick, 1994; Wilensky, 1995; 1997b), have previously been developed."

Application, paragraph 9.

10.5.5 "[P]assages from the Applicants' specification confirm that an "object-based modeling language" refers to a modeling language that acts on self-contained objects, each of which has its own internal state. See also, U. Wilensky, "What Is Normal Anyway? Therapy For Epistemological Anxiety," Educational Studies in Mathematics, Vol. 33, No. 2, pp. 171-202, § 5.2 (1997) ("Object-based' means that each agent is self-contained: it has its own internal state and communicates with other agents primarily by local channels - agents don't do much action at a distance. The computer language Logo had a single such object - the 'turtle'.... Object-based parallel modeling languages such as StarLogo afford greater identification with their objects, and thus, in contrast to more procedural languages, foster syntonic learning of emergent phenomena.") (attached as Exhibit D in Appendix D)."

10.5.6 "Based on the correct interpretation of the "object-based parallel modeling language component" claim term, Applicants respectfully submit that claims 1-7 are not anticipated by Ulrich's description of the hub processor 104. A careful reading of the cited Ulrich passages (col. 11, lines 31-64) and the associated Figure 13 confirms that Ulrich is describing the distributed database techniques used by the hub server 104 to distribute and update databases in response to requests from the remote exercise machines. Indeed, there is no reference in Ulrich to any "modeling language" at the hub server, whether "object-based," "parallel" or otherwise!"

10.6 **Examiner Response:**

10.6.1 Regarding subsection 1 above, the modeling language is clearly correlated to the simulation. Specifically, when the environment is simulated by the modeling component (**col: 2 line: 26-30: "simulated environment"**).

"Simulation" is defined as:

- "Simulating a chip design through software programs that use models to replicate how a device will perform in terms of timing and results." (Source: http://www.synopsys.com/news/pr_kit/eda_glossary.html)

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- "S: (n) model, simulation (representation of something (sometimes on a smaller scale))" (Source: <http://wordnet.princeton.edu/perl/webwn?s=simulation>)
- "Model" is defined as:
 - "S: (n) model, simulation (representation of something (sometimes on a smaller scale))" (Source: <http://wordnet.princeton.edu/perl/webwn?s=model>)
 - "S: (v) model, simulate (create a representation or model of) "The pilots are trained in conditions simulating high-altitude flights"" (Source: <http://wordnet.princeton.edu/perl/webwn?s=model>)

Further, the modeling / simulation component is clearly parallel because users are able to perform the tasks in parallel (at the same time) to each other (**col: 2 line: 15-18: "the users of the machines can participate in team sports at home"; col: 8 line: 55-58: "By allowing voice communication, the users can talk in real-time while, for example, racing pedal-powered chariots though ancient Rome."**).

10.6.2 Regarding subsection 2 *supra*, it is clear from the description of the Ulrich reference that a parallel modeling language component is taught, because 1) simulation of the environment is performed (which is equivalent to modeling), and 2) the simulation is performed in parallel because multiple users are able to join at the same time and race in real-time. Concerns regarding the term "object-based" are addressed below.

10.6.3 Regarding subsection 3 *supra*, Appellants are attempting to assert and argue a new meaning for the term "object-based", which is neither supported by the original claims, nor the Specification. While Appellants are thanked for providing the definition of "object-oriented" - which is a term well known in the art - it noted that "object-oriented" is not the same as "object-based". The term "object-based" is not a term in the art, which appears to be clearly demonstrated by Appellants lack of definition.

The Instant Application is **entirely devoid** of the term "object-oriented" and uses solely the term "object-based". The term "object-oriented" is a well known term in the art, whereas "object-based" is a generic term and when given its broadest reasonable interpretation consistent with the specification describes that something is based on objects, such as, for example,

exercise machines. An exercise machine is an object, therefore, the modeling language, which is based on the exercise machines, is based on objects. Thus, it is object-based.

Thus, Appellants are again arguing features not claimed. Appellants are arguing an "object-oriented" modeling language, but are claiming an "object-based" modeling language, which cannot be interpreted as "object-oriented" the specification does not disclose an object-oriented modeling language, but, merely one based on objects (ie, "object-based").

Nevertheless, the Ulrich reference teaches the non-claimed feature on (col: 11 line: 46-49:

"[T]he hub records the new state of the user's icon/object (step 170) by referencing an externally or internally maintained object database 172 which contains the location, etc. data on all users in the environment.") (emphasis added).

10.6.4 Regarding subsection 4 *supra*, Appellants interpretation is not consistent with the Specification.

In fact, while stating that the interpretation is broadest reasonable consistent with the specification they are 1) pointing to a definition of "object-oriented" and 2) redefining the term "object-based" inconsistently as presented in the Specification by imparting a new interpretation, not one that is broader reasonably consistent with the Specification.

10.6.5 Regarding subsection 5 *supra*, to not belabor the issue a summary is presented: Appellants are attempting to redefine the meaning of "object-based" without support in the Specification for the term; the term is not a term known in the art; the term "object-oriented" is a term in the art but is not identical to "object-based" and therefore cannot be used to define the latter.

10.6.6 Appellants' remarks in subsection 6 *supra* have been addressed in the responses above.

10.7 Appellants argue (Brief: page 12 Section B.3):

10.7.1 "Yet another deficiency is that Ulrich entirely fails to disclose a server computing device that includes "modeling tools," "analysis tools" and "display tools." With respect to the display limitation, a number of the claims expressly recite that the central server includes a central control panel having a graphical display for viewing the simulation information. See, claims 2, 5-7

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and 12-14. In rejecting these claims, the Examiner relied on Ulrich's description of the display at the remote exercise machine (Figure 2A, item 35). See, Final Office Action, p. 3 (paragraph 9). However, the only displays described in Ulrich are those associated with the remote exercise apparatus. [...] In contrast, there is no suggestion or disclosure by Ulrich that the hub processor 104 includes a display.

10.7.2 Once the centralized simulation and display aspects are taken into account, it becomes clear that Ulrich's disclosure of a network of remote exercise machine simulators (each of which generates and displays an interactive simulated environment) does not anticipate the present invention's use of a central server computing device to collect remote agent inputs, simulate the interaction of the remote agent inputs display the resulting simulation. These differences alone are sufficient to differentiate the Ulrich disclosure as explained above, though there are other differences that flow therefrom, including the server-based modeling and analysis requirements of claims 2 and 9, the server-transmitted interactive simulation information of claims 3 and 10, and the server-based display requirements of claims 2, 5-7 and 12-14, none of which are disclosed by Ulrich. Accordingly, Applicants respectfully request that the anticipation rejection of claims 1-14 be withdrawn and that the claims be allowed." (underlined emphasis by Examiner)

10.8 **Examiner Response:**

10.8.1 Regarding subsection 1 *supra*, attention is respectfully drawn to Fig. 12 item 150 (emphasis on "CABLE TV SIGNAL") of Ulrich and its description on (col: 11 line: 24-27), which discloses: "In the broadcast network, the hub further includes an encoder 150 which performs digital-to-analog conversions so analog signals can be broadcast over the cable TV channel."

Thus, the central hub indeed provides a display tool in the form of a cable TV signal.

Additionally, the each of the displays on the exercise machines can be interpreted as an extended display of the central hub, and thus displaying its data.

10.8.2 Regarding subsection 2 *supra*, Appellants are once again arguing features not claimed (emphasized by Examiner). To not belabor the issue a summary is presented: Appellants are not

claiming simulation /modeling of interaction, but rather coordination of interaction which are two separate concepts.

10.9 Examiner Summary:

10.9.1 Appellants requested entry of an after final amendment.

The entry was denied because the amendment presented newly claimed features that required further search and consideration, as was communicated to the Appellants in the Advisory Action.

10.9.2 Appellants argued feature not claimed. Appellants argued that central simulation of interaction is not performed by the Ulrich reference while claiming coordination of interaction.

Coordination and simulation are two separate and distinct concepts. For example, coordination of troop interaction (as claimed) is different when compared to simulation of troop interaction (as argued, but not claimed). Ulrich indeed discloses coordination of agents (exercise machines) as recited in the Instant Claims. Appellants have not argued that Ulrich's hub does not perform coordination of interaction.

10.9.3 Appellants attempted to bring-in a new meaning for the term "object-based". Appellants attempted to defined "object-based" as "object-oriented" without having support for such a definition in the Specification. The Specification is completely devoid of "object-oriented", which is a term in the art. The term "object-based" was given its broadest most reasonable interpretation consistent with the Specification (ie, based on objects - exercise machines).

10.9.4 Appellants appear to have argued simulating an environment is not identical to the claimed modeling. A definition for both "model" and "simulation" was provided to show that these concepts are indeed identical. Therefore, Ulrich's simulation is indeed performing modeling.

10.9.5 Appellants argued that the central system does not have "display tools". Attention was drawn to the hub having a cable TV channel / signal output. Further, each of the exercise machines contained a display that was coupled to the hub to display simulation information.

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(11) Related Proceeding(s) Appendix

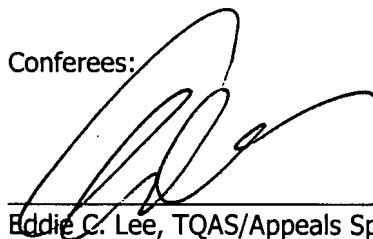
No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

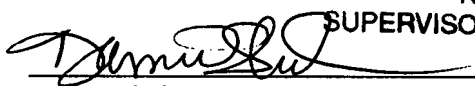
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


David Silver, Patent Examiner, Art Unit 2128

Conferees:


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